NATURAL RESOURCES CONSERVATION SERVICE

CONSERVATION PRACTICE STANDARD

SURFACE DRAINAGE, FIELD DITCH

(Feet)

CODE 607

DEFINITION

A graded ditch for collecting excess water in a field.

PURPOSE

Collect or intercept:

- Excess surface water, such as sheet flow from natural and graded land surfaces or channel flow from furrows, and carry it to an outlet;
- Excess subsurface water and carry it to an outlet.

CONDITIONS WHERE PRACTICE APPLIES

Applicable sites are flat or nearly flat and:

1. Have soils that are slowly permeable (low permeability) or that are shallow over barriers such as rock or clay, which hold or prevent ready percolation of water to a deep stratum.
2. Have surface depressions or barriers that trap rainfall.
3. Have insufficient land slope for ready movement of runoff across the surface.
4. Receive excess runoff or seepage from uplands.
5. Require the removal of excess irrigation water.
6. Require control of the water table.
7. Have adequate outlets available for disposal of drainage water by gravity flow or pumping.

CRITERIA

General Criteria Applicable to All Purposes

Drainage field ditches shall be planned as integral parts of a drainage system for the field served and shall collect and intercept water and carry it to a stable outlet with continuity and without ponding. Field ditches shall be designed and located to prevent possible damages above or below the point of discharge. Compliance with federal, State, and local laws and regulations is required.

Investigations. An adequate investigation shall be made of all sites. Investigation shall include wetland evaluation and an inventory on nearby water supplies. The soils and geology shall be investigated to a least two feet below the proposed excavations.

Location. Ditches shall be established, insofar as topography and property boundaries permit, in straight or nearly straight courses. Random alignment may be used to follow depressions and isolated wet areas of irregular or undulating topography. Excessive cuts and the creation of small irregular fields shall be avoided.

On extensive areas of uniform topography, collection or interception ditches shall be installed as required for effective drainage.

Design. The size, depth, side slopes, and cross section area shall:

1. Be adequate to provide the required drainage for the site.
2. Permit free entry of water from adjacent land surfaces without causing excessive erosion.

3. Provide effective disposal or reuse of excess irrigation water (if applicable).
4. Conduct flow without causing excessive erosion.
5. Provide stable side slopes based on soil characteristics.
6. Permit crossing by field equipment if feasible.
7. Permit construction and maintenance with available equipment.

When surface field ditches discharge into ditches of greater depth, the outfall shall be graded back on a non-erosive slope and/or other protective measures shall be provided.

Field ditches shall not outlet directly into river, streams, lakes or other bodies of water if the quality of the discharge is in question. Measures, such as filter strips, shall be adequately designed and installed to treat the polluted discharge.

Vegetative Protection. All side slopes of newly constructed ditches that are 1.5 (horizontal) to 1.0 (vertical) or flatter shall be protected by establishment of a suitable vegetative cover. A seeding plan shall be developed with lime, fertilizer and seed mixture recommendations. Related disturbed areas shall also be vegetated if compatible with intended land use or erosion is possible.

Area shall be fenced where necessary to protect the vegetation.

CONSIDERATIONS

When planning this practice, the following items should be considered where applicable:

- Potential impacts on downstream flows or aquifers that would affect other water uses or users.
- Potential water quality impacts for soluble pollutants, sediments and sediment-attached pollutants.
- Potential for uncovering or redistributing toxic materials.
- Impacts on cultural resources
- Effects on wetlands or water-related wildlife habitats.
- Effects of water lever control on soil water, downstream water temperature or salinity of soils.
- The need for riparian buffers, filter strips and fencing.
- Effects on water budget components, especially the relationships between runoff and infiltration.

PLANS AND SPECIFICATIONS

Plans and specifications for constructing drainage field ditches shall be in keeping with this standard and shall describe the requirements for properly installing the practice to achieve its intended purpose.

OPERATION AND MAINTENANCE

A site-specific operation and maintenance plan shall be provided to and reviewed with the landowner(s) before the practice is installed.

The plan shall adequately guide the landowner(s) in the routine maintenance and operational needs of the ditch(es). The plan shall also include guidance on periodic inspections and post-storm inspections to detect and minimize damage to the ditch(es).